SUPERIOR UNIVERSITY

Task#3

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Roll#:SU92_BSSEM_F22_202

Subject: Advance Computer Programming

Section: BSSE-4D

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Topic: LinkedList (Insertion, Deletion, update)

Question#1:

LinkedList (Insertion, Deletion, update)

```
class Node {
    int data;
    Node next;

    Node(int data) {
        this.data = data;
        this.next = null;
    }
```

```
}

class LinkedList {
    Node head;

    // Method to insert a new node at the end of the list
    public void insert(int data) {
        Node newNode = new Node(data);
        if (head == null) {
            head = newNode;
        } else {
            Node current = head;
            while (current.next != null) {
                current = current.next;
            }
            current.next = newNode;
        }
    }

    // Method to delete a node by value
    public void delete(int data) {
        if (head == null) {
            System.out.println("List is empty.");
```

```
        return;
    }

    if (head.data == data) {
        head = head.next;
        return;
    }

    Node current = head;
    Node prev = null;

    while (current != null && current.data != data) {
        prev = current;
        current = current.next;
    }

    if (current == null) {
        System.out.println("Node with data " + data + " not found.");
        return;
    }

    prev.next = current.next;
}
```

```
// Method to update a node's value
public void update(int oldData, int newData) {
    Node current = head;

    while (current != null) {
        if (current.data == oldData) {
            current.data = newData;
            return;
        }
        current = current.next;
    }

    System.out.println("Node with data " + oldData + " not found.");
}

// Method to print the linked list
public void printList() {
    Node current = head;
    while (current != null) {
        System.out.print(current.data + " -> ");
        current = current.next;
    }
```

```
        System.out.println("null");
    }

    public static void main(String[] args) {
        LinkedList list = new LinkedList();

        // Insert elements
        list.insert(1);
        list.insert(2);
        list.insert(3);
        list.insert(4);

        System.out.println("Linked List after insertion:");
        list.printList();

        // Delete an element
        list.delete(3);
        System.out.println("Linked List after deletion of 3:");
        list.printList();

        // Update an element
        list.update(2, 5);
        System.out.println("Linked List after updating 2 to 5:");
```

```
        list.printList();
    }
}
```